

The professional origins of Dr. Joseph Mengele

Podium

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Dr. Joseph Mengele, "the angel of death" of Auschwitz, has become the personification of evil, and the world is acutely aware of reports of experiments performed in the name of medical research. Mengele is usually described and referred to as an individual, an aberration, but consider his background and training as a young German physician. Mengele's behaviour, and indeed the Holocaust itself, represents the application of what was considered a legitimate scientific pursuit — the engineering of human society.

This pursuit began years before the outbreak of the war and was well known outside Germany. It originated in England and was pursued in the United States and Canada. The Nazi program (it developed from 1933) was described in the popular and professional English language press outside Germany, and reports were published in genetic and medical journals. The *Journal of the American Medical Association (JAMA)* frequently published detailed accounts of the

Nazi programs and policies in a weekly section called "Foreign Letters"

Mengele pursued applied eugenics, the science of man. The discipline originated in England, and its founder, Francis Galton, was a respected scientist. The goal of eugenics was to breed a "better" type of human being by identifying the "superior" types and encouraging their procreation. Procreation among "inferior" types was to be inhibited.

Applied eugenics was more readily accepted in the United States than in England. The American army conducted intelligence tests on immigrants and inductees into the American Army during WWI, stimulating restrictive immigration policies that limited the number of inferior "Alpine" types, compared with the favoured "Nordic" types, from entering the country. This eugenic policy was accom-

panied by legislated compulsory sterilization for the feeble-minded in more than one-half of the states.^{1,2,3,4} Similar policies were adopted in Canada.^{5,6}

Nazi Germany represented a nation where the main political goal was to engineer an entire race according to eugenics. Beginning in 1933, the "Law for the Prevention of Hereditary Diseases in Future Generations" defined nine conditions considered to be hereditary and undesirable,⁷ including feeble-mindedness, schizophrenia, epilepsy, hereditary blindness, hereditary deafness, chorea minor, manic depressive insanity, grave body malformation and hereditary alcoholism.

Compulsory sterilization was carried out on German citizens who had been or were considered to be potential carriers of these conditions. Beginning in 1934, 50 000 people a year were sterilized against their will or without their understanding.⁸

The sterilization program drew on the resources of the entire German health care system. Approximately one-quarter of German doctors worked in the

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public health system, on a full- or part-time basis, and they were mobilized to identify candidates for sterilization.^{9,10} Physicians had to report all patients in their care who were potential candidates, and the health insurance system identified member patients with hereditary and "racial" diseases.¹¹ Entrants into secondary schools and universities were screened for hereditary defects.^{12,13} Health albums were introduced through the German Workers Front and these were kept by the local public health office (known as a Eugenic Health Center) and were made available to the Nazi Party.¹⁴

Academic research gave intellectual support for these activities. Scholastic research was used to justify existing eugenic policies, and reputable academic researchers recommended broader conditions for sterilization (eg, tuberculosis).¹⁵ Sterilization techniques were studied extensively,^{16,17} and scientific research justified using irradiation (x-ray or radium) to sterilize women.¹⁸

In 1935, eugenic policy became racial policy when "The Laws for the Protection of German Blood", known as the Nuremberg Laws, were passed. These required a medical examination to determine hereditary and racial characteristics. A commission was appointed to arbitrate disputes; four of the seven

members were physicians.¹⁹ An advocate of these laws was the Reichsfuhrer of Physicians, Dr. Gerhart Wagner, who proposed expanding the sterilization policy to include Jews.²⁰ A principal architect of the sterilization law, the psychiatrist Professor Dr. Ernst Rudin, considered the Nuremberg Laws to be a victory for the eugenics movement.²¹

The academic centre for eugenics was the Institute of Heredity and Race Hygiene of the University of Frankfurt. Its founder and director was Professor Dr. Freiherr von Verschuer. The institute incorporated research, education and clinical practice. Eight rooms were available for research. There was a lecture hall that seated 250 people and lectures were given five times a week. These were held in cooperation with the referring clinics, physicians and health bureaus. "Heredobiologic" investigations, consultations and rendering of expert opinions all took place at these sessions.

The institute also taught a course on race hygiene to the medical students at the university. The course curriculum included first clinical semester (3 hours a week), hereditary biology of man; second clinical semester (3 hours a week), race hygiene; final clinical semester (2 hours a week), clinic for hereditary diseases.²²

Von Verschuer was a leading figure in eugenic research. On Jan. 25, 1936, *JAMA* reported on von Verschuer's principle of hereditary research. It read:

What is absolutely needed is research on series of families and twins selected at random. Persons with and persons without hereditary defects must be examined under the same conditions, a fixed minimum of examinations being made in all cases. This type of research never deals with individual persons but only with entire families (the four grandparents of an examinee and their offspring).

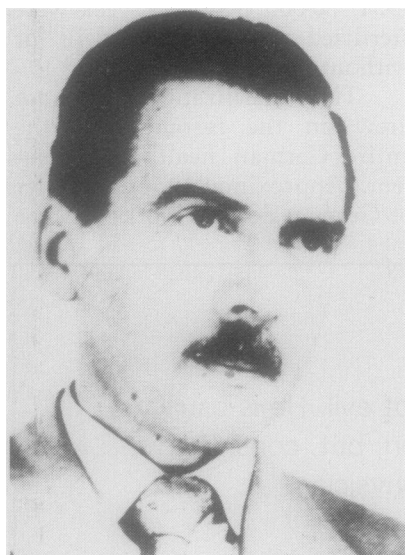
The ultimate aim of heredobiologic appraisal of this type is complete and reliable determination of heredity in man, including complicated cases; differential diagnosis of hereditary and nonhereditary cases of the same disease; and creation of

bases for a general hereditary prognosis. In addition to the special empirical hereditary prognosis in endogenous psychoses already ascertained, a hereditary prognosis in further disease is needed; likewise, more extensive norms (ie, for consultation on proposed marriages) are needed on which to base expert opinions. Scientists must determine exactly the extent of the damage caused by adverse hereditary influences, and the frequency and range of hereditary predispositions; in no other way can conclusions be drawn on which to base answers to questions such as the origin of pathologic hereditary predispositions, and the relations between disease, racial types and miscegenation.²³

In recognition of his work, von Verschuer, in 1939, was invited to address the Royal Society of London; his lecture was entitled "Twin research from the time of Francis Galton to the present day".²⁴ Von Verschuer's work continues to be cited in the current medical literature.

In 1934, 23-year-old Joseph Mengele, having studied philosophy at the University of Munich, joined von Verschuer as a research assistant and member of his institute. An article pertaining to his work at the institute was indexed in the 1937 edition of *Index Medicus*.²⁵ In 1936, he became a doctor of philosophy and in 1938 he received his MD degree from the University of Frankfurt. He enlisted in the German army and joined the *Schutz-Staffel* (SS), the Nazi special police force, serving as a medical officer in France and Russia. In 1943 Heinrich Himmler appointed Mengele the chief physician of Auschwitz and Mengele used Auschwitz as a laboratory to study and to apply the principles of eugenic and racial research that he had learned under von Verschuer in Frankfurt, namely, "... research on series of families and twins selected at random"^{24,25} (M. Kater: personal communication, 1985).

Recently Lifton has reported that Mengele in Auschwitz "had the support and collaboration of ... [von] Verschuer, who convinced the German Research Society to provide financial support



Mengele: von Verschuer's research assistant

for Mengele's work". Part of Mengele's work consisted of the study of inmates with eyes of different colours. Upon the execution of the inmates, their eyes were removed and sent to von Verschuer in Berlin.^{26,27,28}

If Mengele could have been brought to justice, what should have been on trial would not have been a single individual but a health care system and a professional climate that created Joseph Mengele and legitimized his work. But what should also be held accountable is the international medical community that observed these early developments in silence.

I wish to acknowledge the assistance of a number of people who made important contributions to this paper. Dr. Michael Kater, professor of history at York University is responsible for making the connection between Mengele and von Verschuer. My wife, Racheline Dayan Seidelman, reviewed the manuscript and translated the abstract. Dr. Charles Roland, the Jason Hannah Professor of the History of Medicine at McMaster University, reviewed and edited the manuscript. The archivists and librarians of the Centre de documentation juive contemporaine in Paris, the Wiener Libraries in London, England and Tel Aviv and the library of Yad Vashem in Jerusalem assisted in the location of important documents.

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Therapeutic Index

Antiarrhythmic agent

Pronestyl-SR 1102, 1168, 1167

Antibacterial agent

Bactrim 1100, 1171

Antibiotic

Penglobe 1110, 1111, 1172

Antihypertensive agent

Apresoline 1114, 1155
Lopresor SR 1140, Outside Back Cover
Visken 1105

Anti-inflammatory agent

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Zovirax 1098

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Ventolin 1172, Inside Back Cover

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Chemstrip bG 1108

Histamine H₂ receptor antagonist

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Zantac 1160 B,C,D

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Micro-K 1128, 1173

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Rx Summary

Indications

The following infections when caused by susceptible pathogens:

- ☐ upper and lower respiratory tract (particularly chronic bronchitis and including acute and chronic otitis media)
- ☐ urinary tract: acute, recurrent and chronic
- ☐ genital tract: uncomplicated gonococcal urethritis
- ☐ gastrointestinal tract
- ☐ skin and soft tissue
- ☐ *Pneumocystis carinii* pneumonitis in infants and children.

Not indicated in infections due to *Pseudomonas*, *Mycoplasma* or viruses.

Contraindications

Evidence of marked liver damage or renal impairment where repeated serum assays cannot be carried out; blood dyscrasias; known hypersensitivity to trimethoprim or sulfonamides.

During pregnancy, and in newborn or premature infants during first few weeks of life.

Precautions

Benefit should be critically appraised against risk in patients with liver damage, renal damage, urinary obstruction, blood dyscrasias, allergies, or bronchial asthma. Reduce dosage in patients with renal impairment. Do not administer if serum creatinine level is above 2 mg%. Consider possible superinfection with a non-sensitive organism.

Adverse reactions

Most frequent: nausea, vomiting, gastric intolerance, and rash.

Less frequent: diarrhea, constipation, flatulence, anorexia, pyrosis, gastritis, gastroenteritis, urticaria, headache, and liver changes (abnormal elevations in alkaline phosphatase and serum transaminase).

Occasionally reported: glossitis, oliguria, hematuria, tremor, vertigo, alopecia, and elevated BUN, NPN, and serum creatinine.

Hematological changes: primarily, neutropenia and thrombocytopenia, and less frequently, leukopenia, aplastic or hemolytic anemia, purpura, agranulocytosis, and bone marrow depression; occur particularly in the elderly and mostly prove reversible on withdrawal.

Dosage

Children: 6 mg trimethoprim/kg body weight per day, plus 30 mg sulfamethoxazole/kg body weight per day, divided into two equal doses.

Adults and children over 12 years of age:

Standard dosage:

1 'Bactrim' DS 'Roche' tablet or 2 adult tablets, twice daily.

Minimum dosage and dosage for long-term treatment:

1/2 'Bactrim' DS 'Roche' tablet or 1 adult tablet, twice daily.

Maximum dosage (overwhelming infections):

1 1/2 'Bactrim' DS 'Roche' tablets or 3 adult tablets, twice daily.

In acute infections treat for at least 5 days or until patient is asymptomatic for 48 hours; in urinary tract infections, until urine sterile.

Uncomplicated gonorrhea: 2 adult tablets or 1 'Bactrim' DS 'Roche' tablet four times daily for 2 days.

Pneumocystis carinii pneumonitis: 20 mg/kg/day

trimethoprim and 100 mg/kg/day sulfamethoxazole in four divided doses for 14 days.

Supply

Adult tablets: White, capsule-shaped, biconvex tablet with ROCHE C engraved on one face and BACTRIM and indented score on the other, each containing 80 mg trimethoprim and 400 mg sulfamethoxazole.

Bottles of 100 and 500. Unit dose, boxes of 100.


DS tablets: White, capsule-shaped, biconvex tablet with ROCHE engraved on one face and BACTRIM DS and indented score on the other, each containing 160 mg trimethoprim and 800 mg sulfamethoxazole.

Bottles of 100 and 250.

Suspension: Cherry flavoured, 40 mg trimethoprim and 200 mg sulfamethoxazole per 5 mL.

Bottles of 100 and 400 mL.

Pediatric tablets:

White, cylindrical biconvex tablet with  engraved on one face, single scored on the other with C above and below score line, each containing 20 mg trimethoprim and 100 mg sulfamethoxazole.

Bottles of 100.
Solution for infusion: 5 mL amber-coloured ampoules, containing 80 mg trimethoprim (16 mg/mL) and 400 mg sulfamethoxazole (80 mg/mL) for infusion with D5W, Ringer's solution or NaCl 0.9% solution. Packs of 25 ampoules.

Product monograph available on request.

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